

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ueli BREITSCHMID

Application No.: 10/810,901

Confirmation No.: 1090

Filed: March 29, 2004

Art Unit: 3723

For: INTERDENTAL BRUSH

Examiner: R. E. Chin

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on May 28, 2008, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

- I. Real Party In Interest
- II Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds of Rejection to be Reviewed on Appeal
- VII. Argument
- VIII. Claims
- Claims Appendix

Evidence Appendix
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I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

CURADEN INTERNATIONAL AG

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 19 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 3, 5, 7, 8, 10-13, 15, 17
2. Claims withdrawn from consideration but not canceled: none
3. Claims pending: 1, 2, 4, 6, 9, 14, 16, and 18-29
4. Claims allowed: none
5. Claims rejected: 1, 2, 4, 6, 9, 14, 16, and 18-29

C. Claims On Appeal

The claims on appeal are claims 1, 2, 4, 6, 9, 14, 16, and 18-29

IV. STATUS OF AMENDMENTS

Applicant did not file an Amendment After Final Rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Embodiments covered by claim 1 are directed to an interdental brush (original specification at page 2, line 16: "Description of the Invention"; Figs. 1, 2; discussion in original specification at page 4, lines 23-32) comprising two wire sections (e.g., wire sections 1a and 1b) formed of austentic steel (original specification at page 3, lines 14-22) and having a diameter of 0.3 mm or less (original specification at page 2, lines 9-11), and filaments (filaments 2) retained between the two wire sections which are twisted with one another (original specification at page 4, lines 26-27), wherein the austentic steel includes less than 0.05% nickel by weight (original specification at page 5, lines 9-11), wherein the two wire sections have a tensile strength of 1000 N/mm² or more (original specification at page 5, lines 28-31).

Embodiments according to claim 2 further cover wherein the two wire sections have a diameter of more than 0.15 mm (original specification at page 2, lines 29-37).

Embodiments according to claim 4 further cover wherein the two wire sections have a tensile strength of 1200 N/mm² or less (original specification at page 3, lines 2-8). Claim 9 covers this same feature.

Embodiments according to claim 6 further cover wherein the two wire sections are stretched or drawn out (original specification at page 3, lines 24-28). Claims 14 and 16 cover this same feature.

Embodiments covered by claim 18 are directed to an interdental brush (original specification at page 2, line 16: "Description of the Invention"; Figs. 1, 2; discussion in original specification at page 4, lines 23-32) comprising:

two wire sections (e.g., wire sections 1a and 1b) formed of austenitic steel (original specification at page 3, lines 14-22) and having a diameter of 0.3 mm or less (original specification at page 2, lines 9-11); and

filaments (filaments 2) retained between the two wire sections which are twisted with one another (original specification at page 4, lines 26-27),

wherein the austenitic steel contains manganese, nitrogen, carbon, chromium, molybdenum, silicon, phosphorus, titanium, iron and nickel as alloying constituents (original specification at page 5, lines 15-23) and the proportion of nickel in the austenitic steel is less than 0.05% by weight (original specification at page 5, lines 9-11),

wherein the two wire sections have a tensile strength of 1000 N/mm² or more (original specification at page 5, lines 28-31).

As per claim 19, the proportion of chromium is disclosed at page 5, line 15.

As per claims 20-21, the proportion of manganese is disclosed at page 5, line 16.

As per claims 22-24, the proportion of nitrogen is disclosed at page 5, line 18.

As per claim 25, the proportion of molybdenum is disclosed at page 5, line 17.

As per claim 26, the proportion of carbon is disclosed at page 5, line 20.

As per claim 27, the proportion of silicon is disclosed at page 5, line 19.

As per claim 28, the proportion of phosphorous is disclosed at page 5, line 22.

As per claim 29, the proportion of titanium is disclosed at page 5, line 23.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. The Final Office Action rejects claims 1, 2, 4, 6, 9, 14, and 16 under 35 U.S.C. § 102(b) as being anticipated by EP 0800781 (referred to as EPO '781).

2. The Final Office Action rejects claims 1, 2, 4, 6, 9, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over EPO '781.

3. The Final Office Action rejects claims 18-29 under 35 U.S.C. § 103(a) as being unpatentable over EPO '781 in view of JP 8-308637 (JP '637).

VII. ARGUMENT

1. The rejection of claims 1, 2, 4, 6, 9, 14, and 16 under 35 U.S.C. §102(b) fails to establish *prima facie* anticipation, because the single prior art reference EPO '781 fails to teach or suggest each and every claimed feature.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. Dismissed, 468 U.S. 1228 (1984); W.L. Gore and Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. Denied, 469 U.S. 851 (1984).

Claim 1 requires “two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less,” wherein the austenitic steel includes less than 0.05% nickel by weight.”

The rejection refers to EPO '781 at page 2, line 54, to page 3, line 8, which describes first, second, and third aspects. The rejection states that the first, second, and third aspects do not include nickel.

Appellant submits that although many variations of stainless steels are disclosed, EPO '781 specifically selects as a “new alloy,” the alloy corresponding to the seventh aspect of the invention (see bottom paragraph at page 7) as a preferred alloy for an interdental brush. EPO '781 indicates the following conditions are required for an interdental brush wire:

- the wire must be chemically nontoxic to the human body;
- the wire must not be sprung back and can be twisted;
- the wire must not be broken even when it is bent repeatedly;
- the wire must not be buckled by a brushing operation along the axial direction of the wire.

EPO '781 states that its invention is intended to provide a solution which is most suitable for use as an interdental brush wire, wherein mechanical properties are improved by adding nitrogen to stainless steel and controlling the proportion of manganese. Wires having added nitrogen content are divided among two groups based on the content of manganese: a first group

having manganese content of more than 2.5 wt%, and a second group having manganese content of less than 2.5 wt%. Subsequently, Appellant submits that EPO '781 does not appear to considered nickel content as an essential feature in meeting the required conditions for an interdental brush wire.

EPO '781 discloses specific examples of the "new alloy" having chemical compositions shown in Table 2 that were measured for their mechanical properties and evaluated for their performance as a brush (see page 8, second full paragraph). The example chemical composition shown in Table 2 having the lowest nickel content shows a Nickel content of 0.52 percent by weight.

Appellant submits that the "new alloy" disclosed in EPO '781 selected as the alloy for an interdental brush has a Nickel content of ten times the percent by weight required by the claimed invention. Therefore, Appellant submits that EPO '781 fails to disclose an interdental brush that meets the claimed feature of wire sections formed of austenitic steel that includes less than 0.05% nickel by weight.

Furthermore, claim 1 requires that "two wire sections have a tensile strength of 1000 N/mm^2 or more."

The rejection refers to EPO '781 at page 2, lines 38-40 and page 3, lines 56-58, as disclosing "where the wire has tensile strength of not less than 40 kgf/mm squared which meets the claimed limitations of " 1000 N/mm^2 or more" or 1200 N/mm^2 or less." Appellant submits that the rejection is in error.

The section at page 2 in EPO '781 provides a summary of the teachings of JP 227315 regarding a cobalt-based alloy wire and does not teach a specific range of tensile strength. Rather, the section at page 3 in EPO '781 states that "there is provided an interdental brush wire having such wire tensile properties as a proof stress of not less than 40 kgf/mm^2 and an elongation of not less than 30% before twisting." Therefore, Appellant submits that the value of "40 kgf/mm squared" referred to in the rejection pertains to proof stress, not tensile strength. Furthermore, it can be seen that neither section discusses "tensile strength," and much less the specific tensile strength as recited in claim 1, as well as claims 4 and 9.

The claimed invention is directed to wire sections consisting of a nickel content in the alloy that is less than 0.05% by weight. Subsequently, claim 1 recites the combination of austenitic steel including less than 0.05% nickel by weight and a tensile strength of 1000 N/mm² or more.

Appellant submits that EP '781 fails to disclose a wire formed of austenitic steel that includes less than 0.05% nickel by weight and having a tensile strength of 1000 N/mm² or more. Thus, EP '781 fails to teach each and every claimed element, and accordingly the rejection fails to establish *prima facie* anticipation. Likewise, EP '781 fails to disclose the further feature recited in claims 4 and 9 of a tensile strength of 1200 N/mm² or less, in combination with the features recited in claim 1.

In addition, with respect to claims 6, 14, and 16, the rejection fails to establish *prima facie* anticipation, as it merely presents a conclusion that the recitation appears to be drawn to method step not germane to patentability of apparatus claims.

As disclosed in the present specification, operations of stretching and drawing out the wires during processing increase tensile strength, such that the processed wires are stiffer than those which have not been processed. (spec at page 3, lines 24-28). Appellant submits that two wire sections "stretched" and "drawn out" are products that are stiffer than those which have not been processed. Appellant submits that EP '781 fails to disclose that wire sections have been stretched and drawn out. Thus, EP '781 fails to teach each and every claimed feature of at least claims 6, 14, and 16.

2. The rejection of claims 1, 2, 4, 6, 9, 14, and 16 under 35 U.S.C. § 103(a) fails to establish *prima facie* obviousness, because the single prior art reference EPO '781 fails to teach or suggest all claimed features.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be a reason why one of ordinary skill in the art would modify the reference or

combine reference teachings to obtain the invention. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

Appellant submits that the same argument as above for the combination of features received in claim 1 applies as well to this rejection. As mentioned above, the statement regarding 40 kgf/mm squared pertains to proof stress, not tensile strength. The example "new alloy" disclosed in EP '781 in Table 2 fails to meet the requirement of less than 0.05% nickel.

The rejection under 35 U.S.C. § 103(a) adds that, "In any case, it would have been obvious to one of ordinary skill in the art to have optimized the tensile strength range of the wire sections as claimed since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art." In particular, the rejection states that "the EPO '781 reference specifically recites that the interdental brush wire has high mechanical properties of the wire such as tensile strength and that the properties are well balanced and improved in terms of hardness, spring properties and workability as well as durability against bucking or break which are required for interdental brush wire (see p. 4, lines 7-12 and p. 16, lines 27-32)." (Final Office Action, page 6 and paragraph bridging pages 7-8).

As was also stated above, the section at page 4 of EP '781 does appear to disclose that an interdental brush wire should have high mechanical properties balanced in terms of hardness, spring properties and workability. The section at page 16 describes the same balancing of properties. However, Appellant submits that these sections do not require tensile strength in the range claimed. Furthermore, nowhere in EP '781 is an "optimum" value or preferable range of values for "tensile strength" disclosed. This argument applies as well to claims 4 and 9.

Also, the argument in the above ground of rejection under 35 U.S.C. § 102(b) for claims 6, 14, and 16, applies as well to the rejection under 35 U.S.C. § 103(a).

3. The rejection of claims 18-29 under 35 U.S.C. § 103(a) fails to establish *prima facie* obviousness, because EPO '781 and JP '637, either alone or in combination, fail to teach or suggest each and every claimed feature.

The rejection applies the same reasoning as in the rejection under 35 U.S.C. § 103(a) based on EP '781 for commonly claimed elements. Accordingly, Appellant submits that the same argument as above for the claimed combination of features applies as well to this rejection. As mentioned above, the statement regarding 40 kgf/mm squared pertains to proof stress, not tensile strength. The example disclosed in Table 2 of EP '781 fails to meet the requirement of less than 0.05% nickel.

The rejection also repeats that, "In any case, it would have been obvious to one of ordinary skill in the art to have optimized the tensile strength range of the wire sections as claimed since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art." In particular, the rejection repeats that "the EPO '781 reference specifically recites that the interdental brush wire has high mechanical properties of the wire such as tensile strength and that the properties are well balanced and improved in terms of hardness, spring properties and workability as well as durability against bucking or break which are required for interdental brush wire (see p. 4, lines 7-12 and p. 16, lines 27-32)." (Final Office Action, page 6 and paragraph bridging pages 7-8).

As was also stated above, the section at page 4 of EP '781 appears to disclose that an interdental brush wire should have high mechanical properties balanced in terms of hardness, spring properties and workability. The section at page 16 describes the same balancing of properties. However, Appellant submits that these sections do not require tensile strength in the range claimed, as alleged in the rejection. Furthermore, nowhere in EP '781 is an "optimum" value or preferred range of values for "tensile strength" disclosed. This argument applies as well to claims 4 and 9.

The rejection admits that EP '781 fails to disclose an austenitic steel including titanium (Final Office Action at page 7). Instead, the rejection relies on JP '637 for making up for the deficiency in EP '781. Appellant finds that JP '637 discloses that a titanium nickel alloy would be suitable as a material for an interdental brush (Abstract), and that disclosed examples have relatively high percent Nickel content (e.g. 73.0 as shown for x-750 in the table at page 4). Appellant submits that JP '637 fails to make up for the above stated deficiency in EP '781 of failing to disclose a wire formed of austenitic steel that includes less than 0.05% nickel by weight and having a tensile strength of 1000 N/mm² or more. Since EP '781 and JP '637, either alone or in combination, fail to teach all claimed elements, the rejection fails to establish *prima facie* obviousness.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A include the amendments filed by Applicant on September 25, 2007.

Dated: May 28, 2008

Respectfully submitted,

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CLAIMS APPENDIX

Claims Involved in the Appeal of Application Serial No. 10/810,901

1. Interdental brush comprising:

two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less; and
filaments retained between the two wire sections which are twisted with one another,
wherein the austenitic steel includes less than 0.05% nickel by weight,
wherein the two wire sections have a tensile strength of 1000 N/mm² or more.

2. Interdental brush according to Claim 1, wherein the two wire sections have a diameter
of more than 0.15 mm.

4. Interdental brush according to claim 1, wherein the two wire sections have a tensile
strength of 1200 N/mm² or less.

6. Interdental brush according to claim 1, wherein the two wire sections are stretched or
drawn out.

9. Interdental brush according to claim 2, wherein the two wire sections have a tensile
strength of 1200 N/mm² or less.

14. Interdental brush according to claim 2, wherein the two wire sections are stretched or
drawn out.

16. Interdental brush according to claim 4, wherein the two wire sections are stretched or drawn out.

18. Interdental brush comprising:
two wire sections formed of austenitic steel and having a diameter of 0.3 mm or less; and
filaments retained between the two wire sections which are twisted with one another,
wherein the austenitic steel contains manganese, nitrogen, carbon, chromium, molybdenum, silicon, phosphorus, titanium, iron and nickel as alloying constituents and the proportion of nickel in the austenitic steel is less than 0.05% by weight,
wherein the two wire sections have a tensile strength of 1000 N/mm^2 or more.

19. Interdental brush according to claim 18, wherein the proportion of chromium in the steel is 17% by weight, plus or minus 3% by weight.

20. Interdental brush according to claim 18, wherein the proportion of manganese in the steel is 14% by weight, plus or minus 3% by weight.

21. Interdental brush according to claim 19, wherein the proportion of manganese in the steel is 14% by weight, plus or minus 3% by weight.

22. Interdental brush according to claim 18, wherein the proportion of nitrogen in the steel is 0.5% by weight.

23. Interdental brush according to claim 19, wherein the proportion of nitrogen in the steel is 0.5% by weight.

24. Interdental brush according to claim 20, wherein the proportion of nitrogen in the steel is 0.5% by weight.

25. Interdental brush according to claim 18, wherein the proportion of molybdenum in the steel is 2% by weight.

26. Interdental brush according to claim 18, wherein the proportion of carbon in the steel is 0.11% by weight.

27. Interdental brush according to claim 18, wherein the proportion of silicon in the steel is 0.25% by weight.

28. Interdental brush according to claim 18, wherein the proportion of phosphorus in the steel is 0.02% by weight.

29. Interdental brush according to claim 18, wherein the proportion of titanium in the steel is 0.006% by weight.

EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.